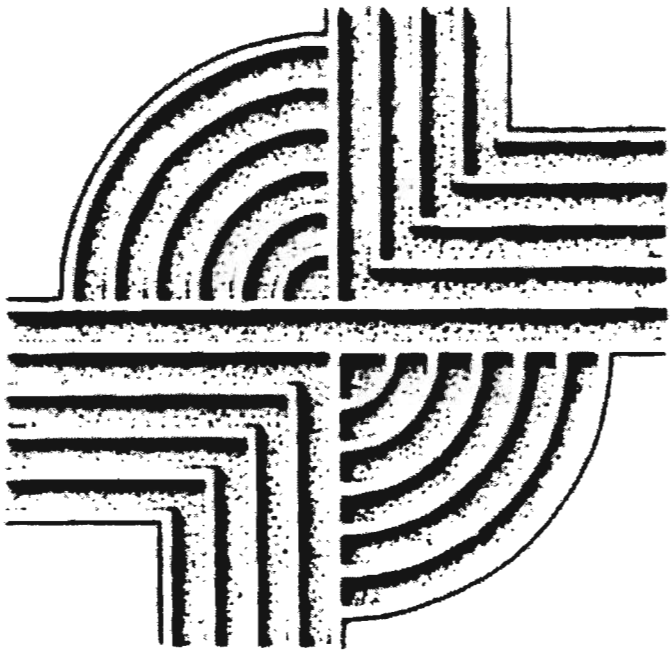
PENETROMETER SURVEY OF SETTLER'S CEMETERY, CHARLOTTE, MECKLENBURG COUNTY, NORTH CAROLINA



CHICORA RESEARCH CONTRIBUTION 273

PENETROMETER SURVEY OF SETTLER'S CEMETERY, CHARLOTTE, MECKLENBURG COUNTY, NORTH CAROLINA

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ABSTRACT

This study reports on an intensive penetrometer survey of the Settler's Cemetery in downtown Charlotte, North Carolina. This was the first burial ground in Charlotte, begun at least by 1776 and operated as a city graveyard. Burials continued until about 1854, when Elmwood Cemetery was opened to relieve crowding.

Today the cemetery covers most of the block bordered to the northwest by Poplar Street, to the southwest by W. Fifth Street, and to the southeast by N. Church Street. The burial ground is situated on a rise which slopes fairly steeply to the southeast. There is extensive evidence of terracing on this slope, although when the modifications were made is uncertain. Over the years the 2.5 acre cemetery has been largely tended as a park and today encompasses bricked pathways, lights, and seating.

There is evidence of 319 stones — some intact, some represented only by bases or other parts. Over time, and various "restoration efforts," many of these stones have been reset in concrete. In the process it seems likely that some were moved in order to create a more orderly alignment. Regardless, the extant stones tend to be clustered in the southwestern half of the cemetery, on the hilltop adjacent to W. Fifth Street.

The goal of this project was to explore the northeastern half of the cemetery — where there are fewer stones — in order to determine the location of unmarked graves. There is an oral tradition that slaves were buried in this lower section of the cemetery and it was hoped that the identification of graves might demonstrate the use of this area.

The investigation of the cemetery used a penetrometer — a device used to measure soil compactness. Where graves have been previously excavated the soil tends to be less compact, allowing the grave shaft to be identified.

The study found that many areas of the cemetery exhibit exceptionally compact soil, frequently in the range of 225 PSI and above. This is far beyond what is normal even for subsoil readings in the North Carolina Piedmont. When areas of presumed graves (areas associated with standing monuments) were examined we found that soil compaction ranged from about 50 to 150 PSI, while non-grave areas (such as between grave shafts) tended to exhibit compaction between 175 and 225 PSI.

It is likely that the densely compacted portions of the cemetery are in areas where other management activities — such as the creation of terracing — has artificially changed the characteristics of the soil. These artificially compacted areas are not amenable to the use of a penetrometer for the identification of graves. In other words, the absence of identified graves in these areas does not mean that graves don't exist (there is compelling reason to believe they do), only that it has not been possible to verify there presence using this technique.

The penetrometer survey was eventually expanded to cover the entire cemetery and our investigations discovered a total of 608 unmarked graves in Settler's Cemetery — nearly twice as many graves as are currently known from stones.

Settler's Cemetery is a good example of a town/city cemetery. The perception that it was filled, necessitating the opening of a new, suburban cemetery in 1854, is likely correct. The penetrometer survey has found that in those areas of the site where there is no artificial compaction, the cemetery is densely filled. Although the degree of use does not match what we have found at Colonial Cemetery in Savannah, Georgia, the Charlotte findings tend to confirm our observations concerning the use of town/city cemeteries.

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ACKNOWLEDGMENTS

I want to thank Ms. Linda Dalton of the Mecklenburg Historical Association for her support of the project. I appreciate this opportunity to be part of the Settler's Cemetery project and hope that the additional information concerning the number of graves at the site will further cement community support for the preservation of this wonderful site.

I also want to thank the City of Charlotte for their unwavering support. In particular Mr. Bill Haas, Engineering and Property Management Special Projects Division, coordinated the details of the survey work which needed to be done to record the identified graves. In addition, I want to thankall of the city crews that worked on the survey and subsequent mapping, including Messrs, Tom Mongomery, David Snider, Leonard Johnson, George Insogna, Richard McCannell, barry Myers, Gary Ferguson, Jeff Presslar, and Chris Rhyne. What seemed like a simple task quickly mushroomed as the number of graves began mounting. In spite of this they were always pleasant and cheerful.

Both NationsBanks and DoubleTree Hotel helped support these investigations through corporate support and reductions in lodging rates. We appreciate their interest in the preservation of Charlotte's heritage.

A great many people stopped by and asked what we were doing during the week on-site. I appreciate this interest and enthusiasm for Charlotte's historic resources and it is good working where there is, in fact, such broad interest.

Finally, I want to thank Ms. Karri Barile for her assistance during the project.

INTRODUCTION

Project Background

In mid-February 1999 we were contacted by Ms. Linda Dalton with the Mecklenburg Historical Association. She explained that in conduction with the City of Charlotte and NationsBank, they were involved in an extensive project to restore, repair, and interpret Settlers' Cemetery. This historic site is the resting place of the founding families of Mecklenburg County and was used from the mid-eighteenth century through the mid-nineteenth century.

The cemetery is situated in uptown Charlotte on a hilltop which slopes steeply to the northeast. It takes up about two-thirds of the city block bordered to the northwest by N. Poplar Street, to the southwest by W. Fifth Street, and the to the southeast by N. Church Street (Figures 1 and 2). To the northeast, on the remaining third of the block, is a historic brick structure now used as offices and a recently completed condominium. To the southwest, across W. Fifth Street, is First Presbyterian Church, initially built in 1815 for use by all denominations. Its debt was taken over the Presbyterian Church in 1832 and the current building was constructed in 1894.

Graves in the cemetery are laid out on a near east-west alignment, although this is at an angle to the cemetery itself since the city and her streets are laid out roughly northeast-southwest. The central portion of the cemetery, adjacent to W. Fifth Street, contains the bulk of the marked burials (Figure 3). Beyond this, as mentioned above, the ground slopes down to the northeast through what appear to be a series of terraces. It is likely, however, that far earlier the topography was more clearly defined. For example, there are today retaining walls along both Poplar and Church streets, suggesting that as the city expanded and the transportation network improved, the sides of the cemetery were affected by the resulting cut sections.

Already completed in the preservation project were extensive stone transcriptions, mapping, and other activities. Ms. Dalton, however, was interested in determining what additional burials might be in the cemetery, since there are today only 319 stones remaining on the 2.5 acre site. She had heard of our previous cemetery work using a penetrometer and thought this approach might work at Settlers' Cemetery.

We provided a proposal to conduct the necessary work on February 15, 1999 and it was accepted by the Mecklenburg Historical Association and the City of Charlotte on February 22. Chicora would conduct the penetrometer survey, initially starting in the lower section where oral tradition had placed the unmarked graves of African American slaves and work into the upper portion of the cemetery where more stones are located as time and funds permitted.

The work was conducted April 12-13 and April 21-23 by Dr. Michael Trinkley and Ms. Karri Barile. A total of 60 person hours were devoted to the penetrometer survey and the entire 2.5 acre cemetery was investigated during the project.

As a result of these investigations a total of 645 additional graves were identified — double the number known from monuments. These graves were flagged in the field and were subsequently mapped by the City of Charlotte.

Historic Synopsis

The research by Chicora Foundation did not include any historic research or land use history documentation. The few comments offered here are entirely from secondary sources or from historic synopses provided by the Mecklenburg Historical Association. It is intended only to help place the site in

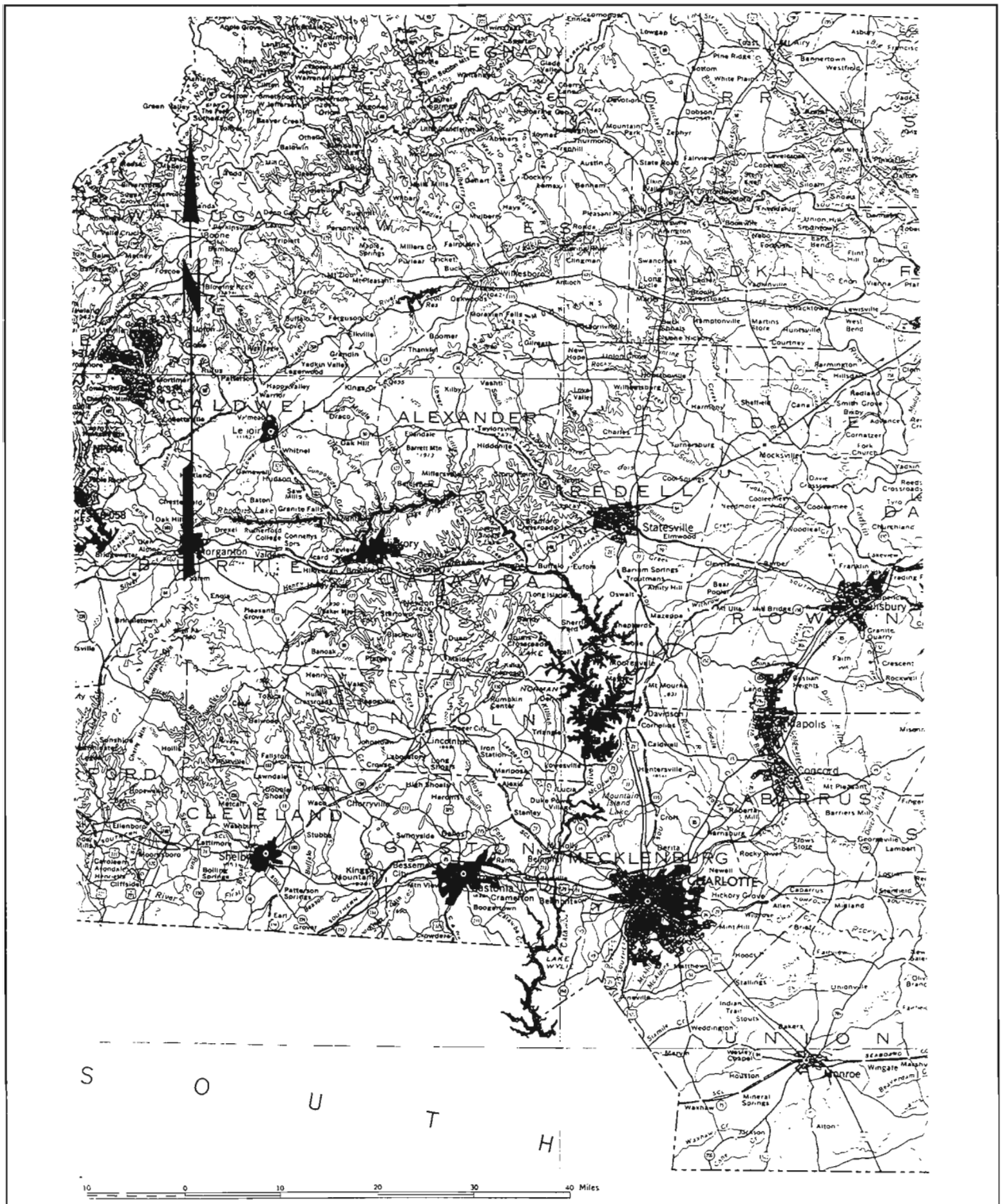

Figure 1. Location of Charlotte in south central North Carolina (base map is USGS State of North Carolina, 1977, 1:500,000).

Figure 2. Location of Settlers' Cemetery in uptown Charlotte (basemap is Rand McNally Charlotte, Mecklenburg County, 1994, 1:38650).

a broader framework.

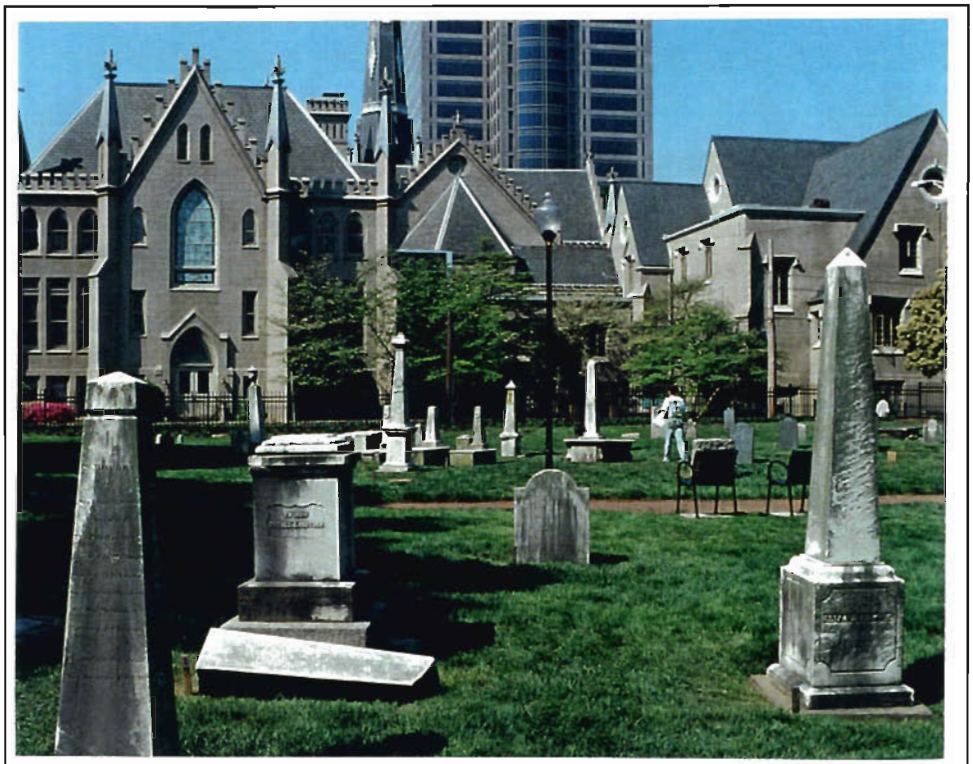

Figure 3. View of the portion of the cemetery adjacent to W. Fifth Street (view to the southwest).

Mecklenburg was formed in 1762 from Anson County and was named for Princess Charlotte (whose name was taken by the County seat, Charlotte) of Mecklenburg, the Queen of George III.[1] From Mecklenburg Tyron County was formed in 1768, Cabarrus was formed in 1792 (with additional annexations in 1794 and 1804), and Union County was created from parts of Mecklenburg and Anson counties in 1842 (Corbitt 1950:148-149).

The original conveyance of 360 acres for the town site was made by Henry E. McCulloch, agent for George A. Selwyn, in 1765 — for only £90. The county seat was chartered in 1768. The area was rapidly settled by what most modern historians call the Scotch-Irish — people primarily from the territories that bordered the Irish Sea, including the north of Ireland, the lowlands of Scotland, and the northern counties of England. Coming in waves after the end of Queen Anne's War in 1713 they most commonly entered the colonies through the port of Philadelphia and drifted south and westward, into the "back parts" of the colonies. Fischer observes that they gradually became the dominant English-speaking culture in a broad belt of territory that extended across much of the North and South Carolina piedmont (Fisher 1989:633-634). By 1790 nearly 51% of the whites in North Carolina and 53% in South Carolina were Scotch-Irish.

Although the backcountry was as mixed religiously as ethnically, by the mid-eighteenth century most visitors to the region observed that Presbyterians dominated. In general (even among the few Anglicans) there was an apathy toward state churches, religious taxes, and established clergy (Woodmason's adventures in the region provide clear evidence of this later feeling). Before the end of the eighteenth century the region gave rise to a familiar form of evangelical religion — the camp meeting (which was actually transported to America from the border counties of Britain).

The area around Charlotte became a hotbed over the British rule under Gov. Josiah Martin. Not only the ever increasing taxes, but also the Crown's refusal to recognize a college charter because of its Whig and Presbyterian influence, served to anger the Scotch-Irish. This dissatisfaction, combined with the news from

[1] These names are unusual among the Scotch-Irish Presbyterians who settled this area. Fischer (1989:639) notes that they typically had little care for the trappings of the English monarchy.

Lexington and Concord, is reputed to have resulted in the Mecklenburg Decoration — a declaration of independence supposedly even earlier than that of the 13 colonies. Many historians (with good evidence) have disputed this claim, but it nevertheless helps explain Scotch-Irish attitudes.

In September 1780 Charlotte was occupied by the British under Cornwallis. After only a few weeks of occupation, and days after Ferguson's disastrous defeat at Kings Mountain, he withdrew to South Carolina, attempting to consolidate his weakening hold on the region. It is claimed that he parting remark was, "this place is damned hornets' nest." This is commemorated on the city's seal and in names of a number of different organizations.

By the end of the eighteenth century Charlotte was the center of North Carolina's gold rush. Until California's gold rush of 1848, the Carolinas were the most productive region in the country. A branch of the United State Mint was built in Charlotte in 1836.

Although largely spared by the Civil War, the last meeting of the Confederate Cabinet was held in Charlotte and at the end of the war the city was occupied by at least 1,200 soldiers in local make-shift hospitals. With the end of slavery, the piedmont saw a gradual shift from agricultural production to manufacturing. Charlotte's location only a short distance east of the Catawba River opened the city to an influx of industry as hydroelectric power was developed. By the 1930s textile mills had become the lifeblood of Charlotte — barometers of prosperity — and textile mill villages (such as Chadwick-Hoskins on the west and North Charlotte) surrounded the city.

It was during the late eighteenth and early nineteenth centuries that Settlers' Cemetery saw the greatest use. Although immediately across the street from the First Presbyterian Church, it was not a church graveyard and was open for use by any Charlotte citizen.

Although we have no definitive historical information, typically town/city cemeteries were established for the general use of the population and were maintained by a town sexton. Graves were likely not carefully plotted and it seems that in many cases few or no records were maintained. As a result, it is likely that the lines of graves would "weave" across the landscape, maintaining only a vague semblance or order. Many eighteenth and early nineteenth century accounts of these in-city grave yards comment on the ground being constantly torn-up from burials and, since space was always at a premium, there were few defined pathways. For the same reason plantings were uncommon and might consist of an occasional tree or shrub. In general, the town/city cemeteries were bleak places, very similar to churchyard burial grounds.

It seems that this would be even more likely the case in Charlotte among the Scotch-Irish, who Fischer observes has a "nescient fatalism" concerning death. They tended to reject the various Puritan and Anglican approaches:

> They knew death intimately as the cruel and violent destroyer of life, and they also knew how capricious it could be. The main thing was to cultivate courage in the face of these cosmic uncertainties (Fischer 1989:699).

Their attitude was that of Robert Burns, who wrote:

> I've seen you weary winter-sun
> Twice Forty Times return,
> And ev'ry time has added proofs
> That Man was made to mourn.[2]

With this approach to life and death, it seems unlikely that any real effort was made to soften the harshness of the city cemetery. By 1854 it, like so many other urban cemeteries, was both filled and thought to pose a serious health threat to the living. As a result a new cemetery — Elmwood — was laid out on the western outskirts of the city. Some accounts suggest that burials ceased at the old city burying grounds except for those given special permission, while other sources suggest that the First Presbyterian Church continued to use the cemetery until about 1870.

[2] "Man Was Made to Mourn."

Regardless, with it no longer being used for burials, the property lapsed into not only disuse but also disrepair. The first restoration efforts were apparently in the first decade of the twentieth century, when the Charlotte Park and Tree Commission and the DAR joined forces. Additional efforts apparently took place in the early 1950s under the leadership of Mayor Victor Shaw. In the 1970s additional effort was devoted to the cemetery. It seems that over time the cemetery was gradually transformed into a park — similar in at least some respects to the history of Colonial Cemetery in Savannah (Trinkley and Hacker 1999). At some point a large fountain was placed in Settlers' Cemetery — over and through many graves of course. This was subsequently removed and today walkways have been restyled, handicapped access has been provided, new fencing has been erected, retaining walls have been built, and the site seems to hang somewhere midway between a cemetery and a park.

PENETROMETER SURVEY

Methods

A penetrometer is a device for measuring the compaction of soil. Soil compaction is well understood in construction, where its primary objective is to achieve a soil density that will carry specified loads without undue settlement, and in agronomy, where it is recognized as an unfavorable by-product of tillage. Compaction is less well understood in archaeology, although some work has been conducted in exploring the effects of compaction on archaeological materials (see, for example, Ebeid 1992).

In the most general sense, the compaction of soil requires movement and rearrangement of individual soil particles. This fits them together and fills the voids which may be present, especially in fill materials. For the necessary movement to occur, friction must be reduced, typically by ensuring that the soil has the proper amount of moisture. If too much is present, some will be expelled and in the extreme the soils become soupy or like quicksand and compaction is not possible. If too little is present, there will not be adequate lubrication of the soil particles and, again, compaction is impossible. For each soil type and condition there is an optimum moisture level to allow compaction.

When natural soil strata are disturbed — whether by large scale construction or by the excavation of a small hole in the ground — the resulting spoil contains a large volume of voids and the compaction of the soil is very low. When this spoil is used as fill, either in the original hole or at another location, it likewise has a large volume of voids and a very low compaction.

In construction, such fill is artificially compacted, settling under a load as air and water are expelled. For example, compaction by heavy rubber-tired vehicles will produce a change in density or compaction as deep as 4 feet. In agriculture, tillage is normally confined to dry weather or the end of the growing season — when the lubricating effects of water are minimized.

In the case of a pit, or a burial, the excavated fill is typically thrown back in the hole not as thin layers that are then compacted before the next layer is added, but in one, relatively quick, episode. This prevents the fill from being compacted, or at least as compacted as the surrounding soil.

Penetrometers come in a variety of styles, but all measure compaction as a numerical reading, typically as pounds per square inch (psi). The dickey-John penetrometer consists of a stainless steel rod about 3-feet in length, connected to a T-handle. As the rod is inserted in the soil, the compaction needle rotates within an oil filled (for damping) stainless steel housing, indicating the compaction levels. The rod is also engraved at 3-inch levels, allowing more precise collection of compaction measurements through various soil horizons. Two tips (½-inch and ¾-inch) are provided for different soil types.

Of course a penetrometer is simply a measuring device. It cannot distinguish soil compacted by natural events from soil artificially compacted. Nor can it distinguish an artificially excavated pit from a tree throw which has been filled in. Nor can it, per se, distinguish between a hole dug as a heath and a hole dug as a burial pit. What it does is convert each of these events to PSI readings. It is then up to the operator to determine through various techniques the cause of the increased or lowered soil compaction.

Curiously, penetrometers are rarely used by archaeologists in routine studies, although they are used by forensic anthropologists (such as Drs. Dennis Dirkmaat and Steve Nawrocki) and by the Federal

Bureau of Investigation (Special Agent Michael Hochrein) in searches for clandestine graves. While a penetrometer may be only marginally better than a probe in the hands of an exceedingly skilled individual with years of experience, such ideal circumstances are rare. In addition, a penetrometer provides quantitative readings which are replicable and which allow much more accurate documentation of cemeteries. In fact, as will be discussed here, our research in both sandy and clayey soils in Virginia, North Carolina, South Carolina, and Georgia suggests very consistent graveyard readings.

Like probing, the penetrometer is used at set intervals along grid lines established perpendicular to the suspected grave orientations (Figure 4). The readings are recorded and used to develop a map of probable grave locations. In addition, it is important to "calibrate" the penetrometer to the specific site where it is being used. Since readings are affected by soil moisture and even to some degree by soil texture, it is important to compare readings taken during a single investigation and ensure that soils are generally similar in composition.

Figure 4. Using a penetrometer to determine grave locations.

It is also important to compare suspect readings to those from known areas. For example, when searching for graves in a cemetery where both marked and unmarked graves are present it is usually appropriate to begin by examining known graves to identify the range of compaction present. From work at several grave yards, including the Kings Cemetery (Charleston County, South Carolina) where 28 additional graves were identified, Maple Grove Cemetery (Haywood County, North Carolina) where 319 unmarked graves were identified, and the Walker Family Cemetery (Greenville County, South Carolina) where 78 unmarked graves were identified, we have found that the compaction of graves is typically under 150 PSI, usually in the range of 50 to 100 PSI, while non-grave areas exhibit compaction that is almost always over 150 PSI, typically 160 to 180 PSI (Trinkley and Hacker 1997a, 1997b, 1998).

For example, at Kings Cemetery it was possible to produce several compaction cross sections through cultivated fields, old (fallow) fields, woods, roads, bulldozed areas, and cemetery areas (Trinkley and Hacker 1997a:Figure 10). Particularly important were

the location of graves made obvious by either monuments or sunken grave shafts.

Cultivated areas and burials both revealed compaction readings under 100 PSI. Of course the two areas could be distinguished from each other by the depth of the various compaction readings. The cultivated fields were underlain by soils with compaction readings between 201 and 300 PSI, usually within 0.8 foot of the surface. Burials, on the other hand, revealed the lower compaction readings to depths of 3 feet.

Figure 5. Portion of Settlers' Cemetery showing identified graves.

The roads and other disturbed areas, such as where bulldozers had recently been operated, exhibited compaction levels of over 300 psi. In such areas it is usually impossible to distinguish burials — they are effectively "masked" by the increased soil density.

Between burials, in areas where there was no evidence of burials, compaction ranged from 101 to 300 psi. This suggests that in some areas there may have been earlier graves, at least partially masked by more recent, intrusive graves.

After the examination of over 20 cemeteries using a penetrometer, we are relatively confident that the same ranges will be found throughout the Carolinas and Georgia. It is likely that these ranges are far more dependent on general soil characteristics (such as texture and moisture) than on cultural aspects of the burial process.

The process works best when there are clear and distinct non-grave areas, i.e., when the graves are not overlapping. In such cases taking penetrometer readings at 2-foot intervals perpendicular to the supposed orientation (assuming east-west orientations, the survey lines would be established north-south) will typically allow the quick identification of something approaching the mid-point of the grave. Working along the survey line forward and backward (i.e., north and south) will allow the north and south edges of the grave to be identified. From there the grave is tested perpendicular to the survey line, along the grave's center-line, in order to identify the head and foot.

Typically the head and foot are both marked using surveyor's pen flags. We have also found that it is helpful to run a ribbon of flagging from the head flag to the foot flag, since the heads and feet in tightly packed cemeteries begin to blur together (Figure 5).

Implemented Methods at Settlers' Cemetery

Our initial survey of Settlers' revealed that in many places there were so few stones left that it was

difficult to reconstruct what might have been the original lines. Moreover, there was some concern that stones might have been set (or reset) without regard to actual grave location. As a result, we began our work in the central portion of the cemetery, with the intention of working northeast, down the slope, into the area where there are no markers.

Initially we "calibrated" the penetrometer by examining what were thought to be marked graves. We found that the soil compaction varied from about 50 psi to about 300 psi. The higher readings at first suggested that at least some markers no longer were in their original locations. However, as we continued, we began to realize that many sections of the cemetery exhibit extraordinarily high compaction readings — far in excess of what would be expected even if no burials were present. In other words, the readings of 225+ psi are higher than we should be finding even for piedmont clay subsoils without burials.

In fact, we found that where there are a number of stones the soil compactions readings were universally lower then where there were few or no stones, most particularly on the northeastern and northwestern edges of the cemetery. The compact soils seem to also correspond with the side slopes where there is evidence of artificial terracing. It appears that where stones prevented activities leading to compaction, graves are within a pretty common range of 50 to 100 PSI and non-grave areas are about 150 to 200 PSI. Elsewhere, however, the soils are heavily compacted, often with readings of 300 PSI or higher.

As a result, many areas of the cemetery must remain devoid of identified graves. This does not mean that these areas were not used for burials, but only that the penetrometer was unable to distinguish graves in the highly compacted soils. Given the number of graves found elsewhere in the cemetery, it is likely that even these areas were heavily used.

When we look at the density of graves in the southwestern half of the cemetery, we realize that Settlers' was, in fact, intensively used. Graves are often shoulder to shoulder and there are even a few which appears to be between lines, in an effort to "squeeze in' one more burial without disturbing those already present.

In spite of this, the burials at Settlers' do not appear as tightly packed as those we found in Savannah's Colonial Park Cemetery, where it is likely that toward the end of its use, every excavation intruded on some part of an earlier burial (Trinkley and Hacker 1999). At Settlers', however tightly packed they might have been, we were typically able to distinguish sides to the interments.

The Resulting Map

Over the course of five days we slowly proceeded through the entire cemetery, locating first individual lines, then gradually attempting to discern individual graves. Like at Colonial Cemetery, we found that the individual lines, while recognizable, clearly reflected considerable "torquing" or rotating of lines. This is likely the result of the cemetery's gradual expansion, the very longer period of use, and the failure on the part of either the sexton or the City to take any special care to lay out or maintain plots.

As previously mentioned, there are 319 marked graves in Settlers' Cemetery. At the conclusion of our work we identified 645 graves based on soil compaction. Of these, 37 are associated with marked graves (and were identified simply to help ensure that lines were being correctly run). The remaining 608 — nearly twice the number of marked graves — are unmarked interments (Figure 6). This brings to at least 927 the number of graves known to exist at Settlers' Cemetery. It is likely that the remaining portions of the site, where soil compaction was too great to allow grave definitions, would contribute nearly that same number.

As a result, over its ca. 86 year history (from about 1768 to 1854) it perhaps saw the burials of just under 2,000 individuals. This would be only about 24 burials a year — or about one every two weeks — a far smaller death rate than Charlotte almost certainly saw during its late eighteenth and early nineteenth centuries. This supports the idea that Settlers' saw only a small portion of the burials taking place in Charlotte during this period.

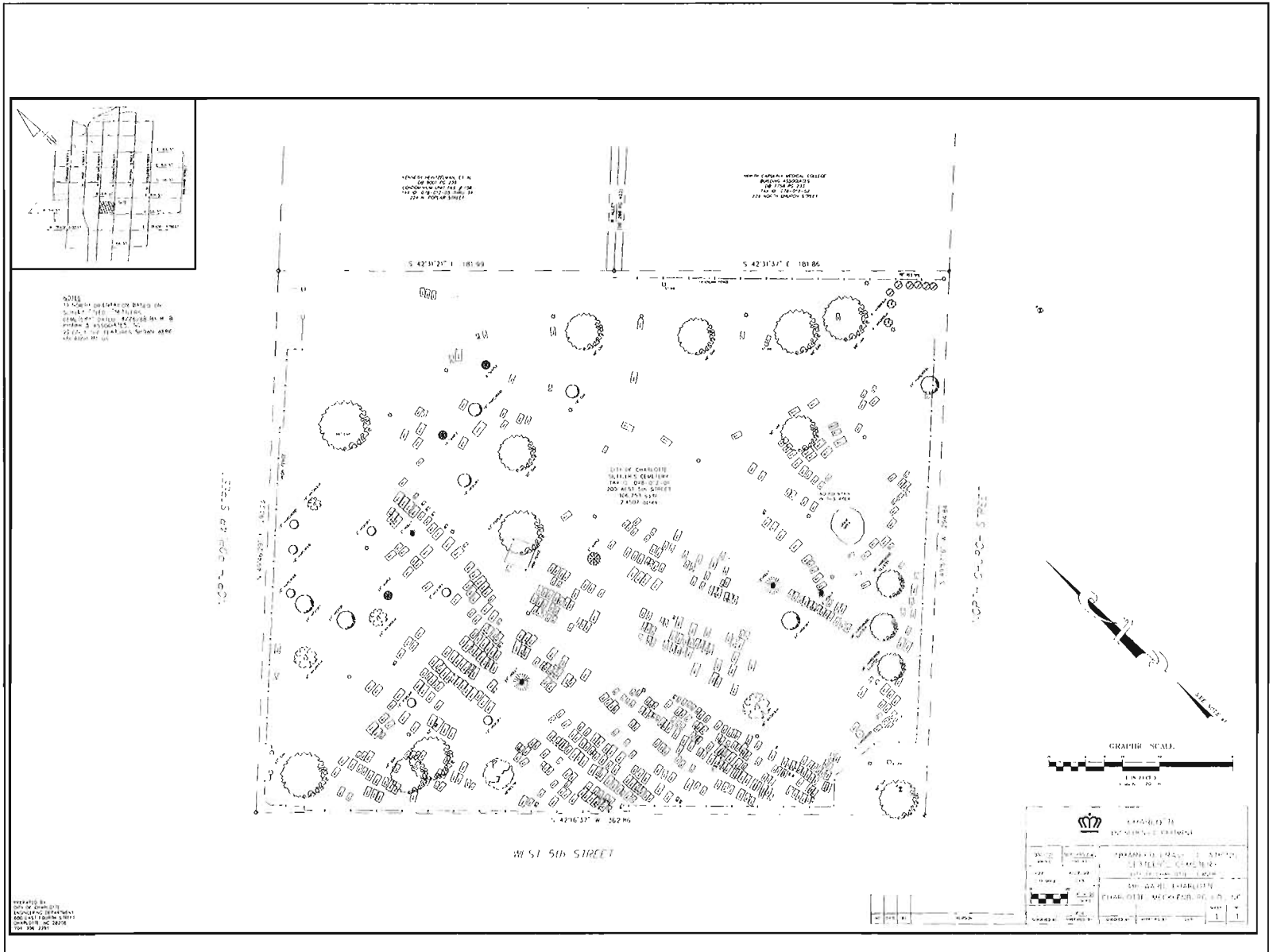

Figure 6. Map of newly identified graves in Settler's Cemetery, mapped by the City of Charlotte.

The map of the cemetery, however, reveals that (where burials could be detected) virtually every foot of the cemetery was used. When closed in favor of Elmwood in the mid-nineteenth century, it is very likely that the cemetery was already filled.

CONCLUSIONS

Findings at Settlers' Cemetery

The penetrometer survey at Settlers' was a success in so far as it identified nearly twice the number of graves as are today marked by monuments. A total of 608 previously unrecognized graves were identified during the five days of investigation. An additional 37 graves were identified which are associated with monuments. As a result, Settlers' Cemetery is thought to have at least 927 burials.

We were unsuccessful, however, at identifying graves in about half of the cemetery property, where ground compaction was found to be well over 225 PSI, often at 300 PSI. In these areas we believe that some form of artificial compaction has taken place. Unfortunately, we have no detailed land use history of the cemetery and the various activities which have taken place over its history. However, it does appear that the northeastern half of the lot has been terraced, while the northern and northwestern edges may have been altered by the erection of a retaining wall. Whatever the cause, extensive compaction took place in the cemetery almost everywhere that monuments didn't prevent access.

This failure to identify graves in these compacted areas should not be taken as evidence that no graves occur. It means only that we were not able to discern graves because of the inherent limitations of the device being used. It seems, based on the quantity of graves identified elsewhere on the lot, that there are many more burials at Settlers', perhaps several thousand total.

This study suggests that additional historical research to discover more about the activities which have taken place on the cemetery, especially in the twentieth century, would be useful. The degree of compaction suggests extensive — and intensive — activities in those portions of the cemetery easily accessible. Exactly what happened, and when, are questions that might help us understand more about the history of Settlers'.

A Broader Context

The research at Settler's does serve to confirm previous research — from both the coastal plain and piedmont of Georgia, South Carolina, North Carolina, and Virginia — concerning the usefulness of the penetrometer to discover grave locations in a cost-effective manner. Its failure to identify graves on a large portion of Settlers' is far more telling about the activities which took place in the cemetery than it is cause for concern over the technique. Where there has not been aggressive human intervention, the penetrometer works as it should and is quite accurate in its identification of graves.

Perhaps of equal interest is the comparison of Settlers' Cemetery in Charlotte, North Carolina with Colonial Park Cemetery in Savannah, Georgia. We speculated at the conclusion of the Savannah research that the findings at that cemetery would be typical of large, urban town/city cemeteries using in the eighteenth and nineteenth centuries. Of course there was concern over the speculations since there was a sample of one. Settlers' helps us to feel more confident in our observations.

Like Colonial Park, Settlers' is not a churchyard cemetery, yet it is far closer to the landscape of gridded graves and "artistic iconographic markers" than the formal garden landscape with sculpture that Sloane suggests characterizes the town cemeteries (Sloane 1991:4).

Moreover, Settlers' seems to have also been intensively used, perhaps giving rise to the same concerns over its healthful that are seen at other urban burial grounds (Trinkley and Hacker 1998:42). But the

historical documents suggest that concerns were not only health related, but also focused on the general lack of care that many of these urban cemeteries received. The wavering rows of graves suggests that the cemetery was not carefully laid out, but simply expanded as more graves were added. There seems to have been no effort to establish any landscape plantings — all of the trees on the site seem to have been ones that would occur naturally. Nor does there seem to have been any intention (prior to the various restoration efforts) to establish pathways — the land was too valuable for burials to be covered by pathways and bricks. In fact, we are inclined to go back to our previous observations concerning the Scotch-Irish folkways. Settlers' starkness may have echoed their feeling toward death and disinclination to mask it.

Although today there are two well defined family plots, it seems unlikely that these were the norm during most of the cemetery's use. Certainly the penetrometer survey did not identify "clusters" of graves off-line that might suggest family plots. Nor did we encounter any buried curbing or other similar evidence of demarcated plots.

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Cemetery Preservation Plans

Historical Research

Identification of Grave Locations and Mapping

Condition Assessments

Treatment of Stone and Ironwork

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